COLSF
Colbert 7.3 V1

MEMORANDUM 6/19/89

Subject: Preliminary Comments on the Colbert Landfill

From: Susan McCarthy
Health and Environmental Assessment Section

To: Neil Thompson
Superfund Branch

Part I: Comments on the Present Hydrogeological Interpretation on Colbert Landfill

I recommend a more complete interpretation of existing data before selecting the locations of monitor and pilot wells for Phase I of the Remedial Design/Remedial Action. Up-to-date VOA sampling of existing monitor wells and selected private wells should be performed. Water level measurements, collected in one day, should be gathered from numerous wells.

The following lists areas where additional interpretation is necessary.

Well Logs

More private well logs need to be collected and used in the interpretation of the hydrogeology and the distribution of chemical contaminants.

1) More well logs from private wells south of the landfill are necessary for defining the thickness and slope of unit B. The unit slopes to the south and contaminants (DNAPLS) may to be following this slope. Information from logs towards the south, near Colbert, could define whether unit B reverses slope or thins. This would provide information on the potential for contaminant ponding and indicate other areas where there is potential for leakage into the lower aquifers.

2) Many of the private well water samples collected through 1989 are from wells with minimal or no geologic information. These provide little information in defining the spread of contaminants since vertical distribution is unknown. The vertical distribution of contaminants should be more thoroughly investigated through the use of addition private well logs in conjunction with existing chemical data.

Maps

1) Chemical Concentration Maps and Water Level Maps

a) The chemical concentration maps presented in the RI (Golder, 1985) need updating.

b) The composite concentration maps for units C/D/E/F (fig. 5-21

through 5-25 in the RI) need to be subdivided. These composite maps neglect the vertical distribution of contaminants within the lower units. Attached is a revised map modified from the RI (Golder, 1985 fig. 5-21) showing the concentration of TCA in unit D alone. Also attached is an annotated cross-section showing the vertical distribution of TCA. At most, these figures provide doubt as to the effectiveness of a western extraction system penetrating unit C alone. At a minimum, these figures demonstrate the necessity for the re-interpretation of existing information before deciding on the number and location of future monitoring and pilot wells.

c) A new round of water levels should be collected incorporating more wells. The maps from Golder (RI, 1985 figs 5-11,5-13, 5-14,5-16 1985) are based on too little data, improperly identified wells , and are collected over too great a time interval.

2) Surface Contour and Thickness Maps

a) An attempt should be made to define the surface of the basalt/granite (E/F). These may be confining units below the weathered basalt (D). The slope of a confining surface below D may provide information on the potential for ponding of contaminants north and east of the landfill. Delineation of this slope would help determine the path of contaminants in unit D and aid in defining the position of monitor wells for the east extraction system.

b) The surface and thickness maps presented by Golder (RI, 1985) don't adequately represent the distribution of data. Very little data is used to produce these maps and it is generalized over a large area. This data should be supplemented with more private wells and contoured again.

Additional Subjects

1) Contaminants may be migrating vertically via improperly sealed private wells. Golder (RI, 1985) based the vertical migration of contaminants below unit B solely on the geological termination of unit B north of the landfill. No doubt this is a major source of contamination. However the exact termination of unit B and its surface contour map, as presented in the RI, is debatable. No comments addressed the potential for vertical migration of contaminants via improperly sealed private wells located near the landfill. These could add to the contamination of units below B. Few of the private wells have anything more than a surface seal.

2) The determination of transmissivity for unit D as presented in the RI (table 5-2) is incorrect. This value is based on the (b)(6) (S) well and is more representative of the Latah formation if the well log for (b)(6) (S) is correct. (It is possible that wells, (b)(6) , CD-1, and (b)(6) would provide a

better estimate of transmissivity of unit D.)

For a more complete picture of the extent of present contamination another sampling round is necessary. The present monitor wells have not been sampled since 1985. In addition to these, selected private wells should be sampled.

Summary of Recommendations

Re-contour surface and thickness maps
Incorporate more geologic information from private wells

Produce current chemical concentration and water level maps
Produce separate concentration maps for unit D
Sample monitor wells and selected private wells.
Determine current water level from selected wells and measure them within one day.

Investigate the possibility of the spread of contamination via improperly sealed private wells.

I recommend that we meet with Landau to discuss future sampling and water level measurements and the selection of appropriate wells.

Part II: Preliminary Comments on the Scope of Work, Phase I, Landau Associates

1) The locations of monitor and pilot wells for the east, west and south extraction systems must be based upon the re-interpretation of existing data (part I of this memo) and through the use of any other existing data such as the soil gas survey (Tracer, 1986).

2) The existence of a contaminant plume moving to the west in the lower aquifer is questionable. The usefulness and operational efficiency of a western extraction system needs to be justified. Evidence for the existance of a plume in the lower aquifers west of the Little Spokane River has not been substantiated because no geological or chemical data has been collected from private wells west of the river.

3) The concept of a source extraction system for containment of contamination in the upper aquifer should be re-examined in light of further data interpretation.

4) I recommend that we meet with Landau and discuss the location of monitor and pilot wells.

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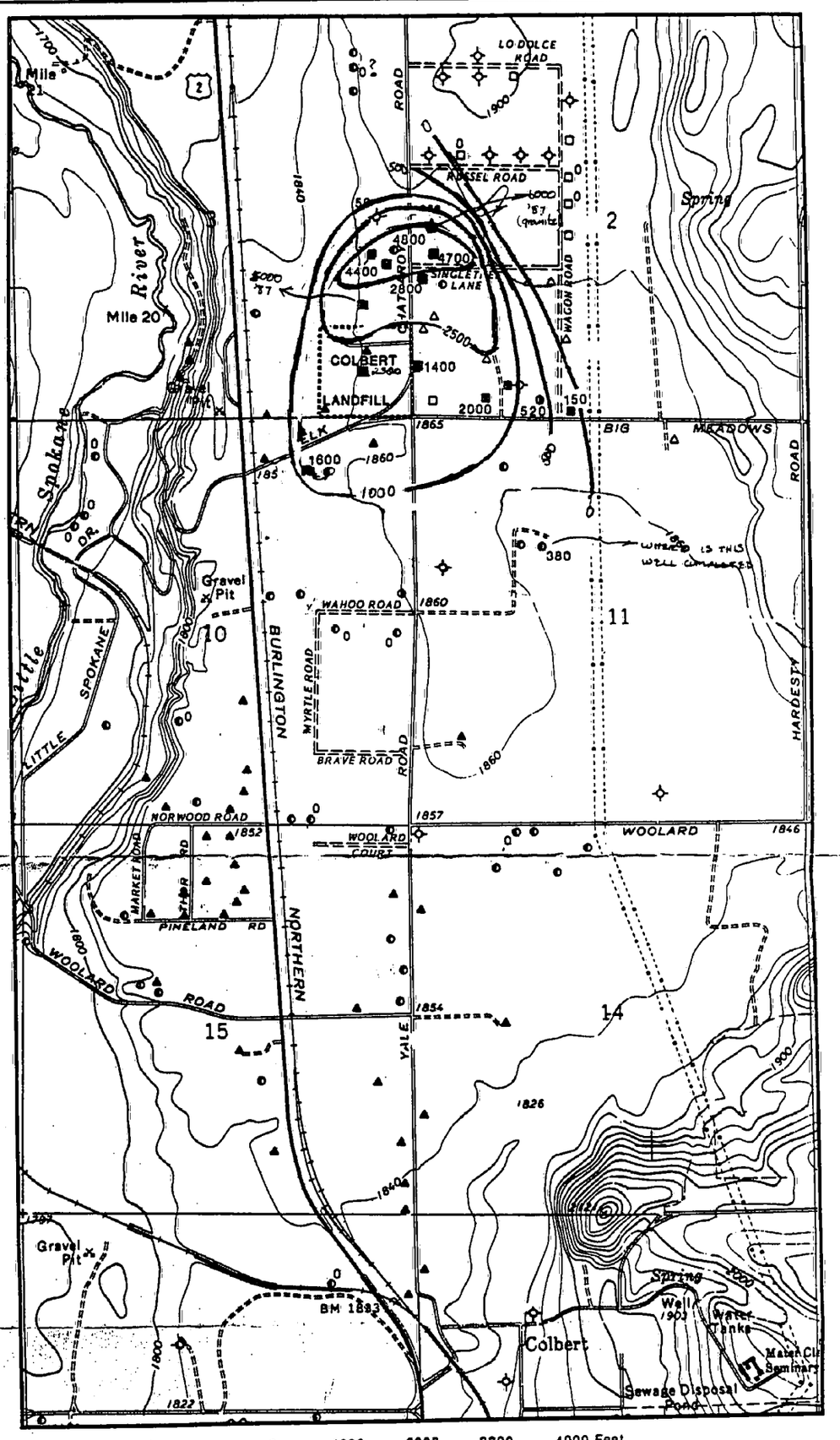

WELL LOCATION AND AQUIFER REPRESENTED

- Unknown
- Upper Sand
- Lower Sand
- Multiple Completion Well
- Weathered Basalt/Latah
- Latah
- Granite

2000 — 1,1,1-TCA Concentration Isopleths (µg/l)

380 Average 1,1,1-TCA Concentration from Wells during Fall and Winter, 1985/1986 (µg/l)

DATA FROM FALL/WINTER '85, '86 (COMPARE WITH FIG 5-21 FOR CHANGE)

1,1,1 - TRICHLOROETHANE (1,1,1-TCA) CONCENTRATIONS IN THE LOWER SAND/GRAVEL AND WEATHERED BASALT/LATAH AQUIFERS, COLBERT LANDFILL

Figure 5-21

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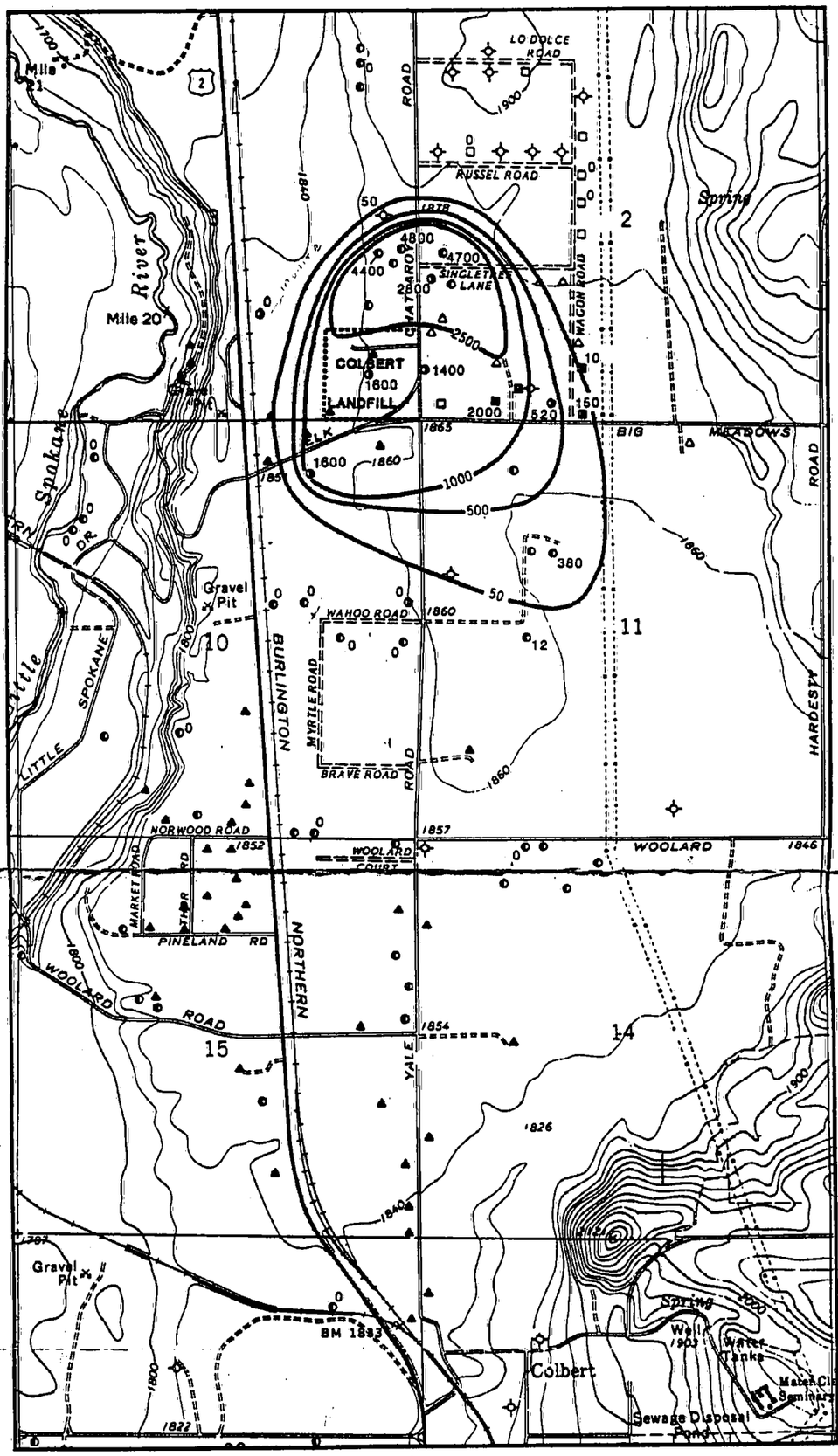

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Figure 5-21

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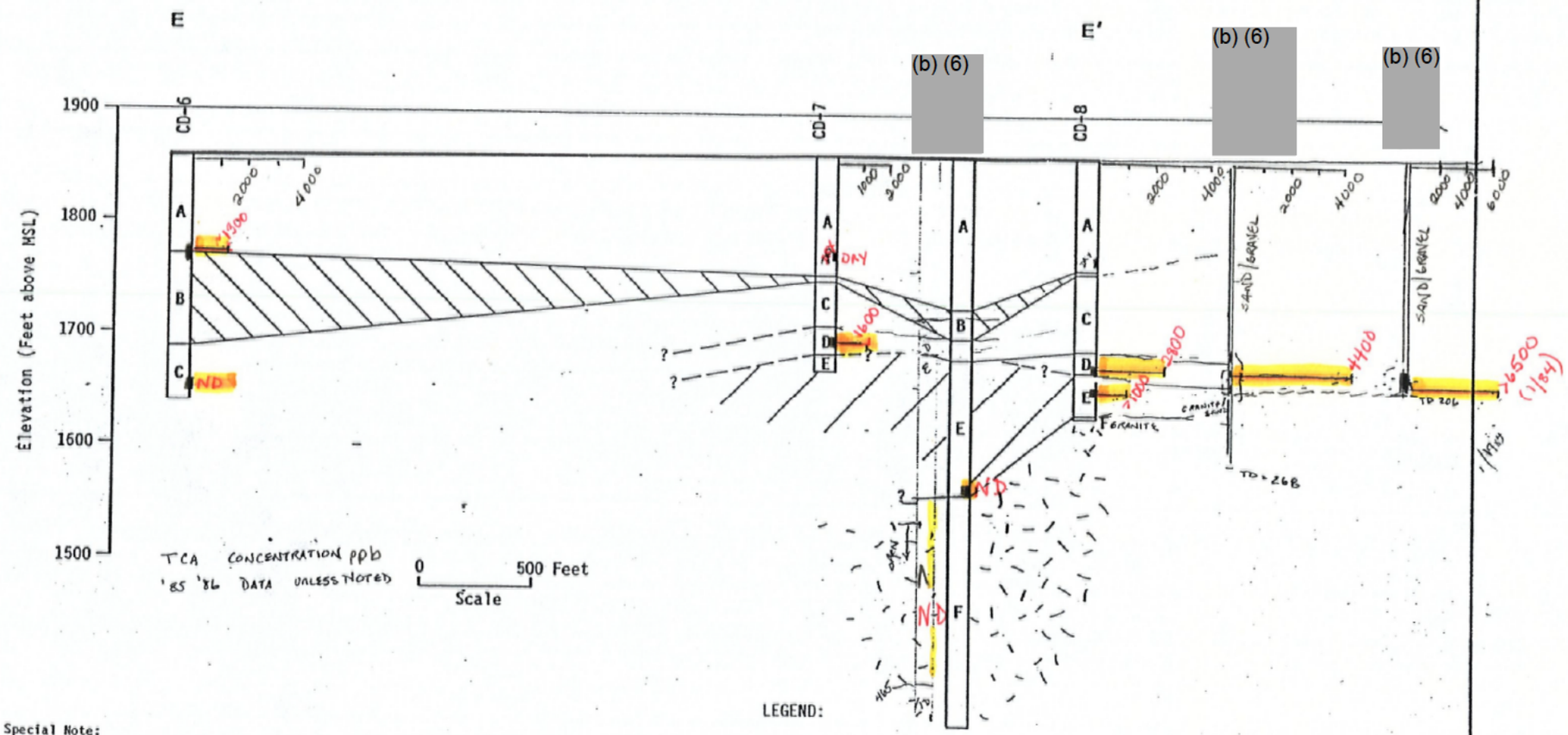
GEOLOGIC CROSS SECTION E-E'
COLBERT LANDFILL

Figure 5-7



Special Note:
Data concerning the various strata have been obtained at exploration locations only. The soil stratigraphy between these locations has been inferred from geological evidence and so may vary from that shown.

LEGEND:

A - Upper sand/gravel aquifer
B - Lacustrine silts/clays
C - Lower sand/gravel aquifer
D - Weathered basalt and Latah Fm.
E - Latah Fm.
F - Granite bedrock

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